

## TRAPPING DRAINS.

I had to call your attention to one of the serious errors daily committed by the Commissioners of Metropolitan Sewers, which is, in having a trap fixed at the end or outlet of every house drain in the sewer, for the purpose of keeping the poisonous air and gas of the sewers out of the house: but instead of doing so, it introduces a regular supply of the obnoxious fluid into the houses. To explain, when a paillful of water enters a drain, a paillful of air must escape out, and does so where there is the least resistance, and this is at the sink trap or the closet pan trap. When the water reaches the end of drain, and opens the trap, as it runs out the same quantity of air must go in over the stream from the sewer, the inlets being closed with water traps; so that for every separate paillful of water which enters the drain, the same quantity of air is measured out into the house. I think you will see it is evident drains can be trapped only at the inlets; and where back-water is troublesome, each inlet might have the same trap which is now used for the outlet.

Kennington-road. Rb. FREEMAN.

## SCENIC ANACHRONISMS.

ROYAL ITALIAN OPERA HOUSE, COVENT GARDEN.

AFTER seeing and listening to the truly magnificent *ensemble* presented by Meyerbeer's *Robert le Diable*, as given at the Italian Opera House, Covent Garden, it seems almost ungrateful to those who have done so much for the gratification of the public to find fault on what may be considered minor points. If we thought that doing so would keep away one intending visitor, it would probably remain undone, but so far from this being the case, the admiration we can honestly express, in making the observation, may, perhaps, lead some to go there who had no such intention previously.

What we have to say, then, is this:—Robert, surnamed the Devil, is an historical personage, and belongs to the eleventh century,—the Norman period; yet in the scene of the second act, a stone screen, the whole width of the stage, is shown of fourteenth century Gothic, and, worse still, in the back ground is seen an Italian palace of the sixteenth century.

Every one now appreciates the absurdity of playing Julius Cæsar in a modern court dress, but what we are now speaking of is, in reality, no less absurd to the discriminating portion of the public. Messrs. Grieve and Telbin are masters in their art, and it is therefore the more important that their attention should be kept to the importance of chronological accuracy. The first scene, a view of Palermo, is charmingly painted. The opera itself is magnificent.

## REMOVAL OF SMOKE, AND VENTILATION OF SEWERS.

We make the following extract (which have been for some time in type) from a pamphlet by Mr. W. Fleckton, surveyor to the town trustees of Sheffield,\* not because we think the scheme practicable, but that our readers, who are interested to the questions to which it refers, may know what others are doing.

"We propose to carry off and dispose of consume smoke, noxious gases, and foul air, and, instead of permitting them to injure and destroy, to turn them, or at least the heat that accompanies them, to a very useful and valuable purpose. It may be well to state the considerations which first suggested our plan. Observing an ordinary house fire, we were led to a conclusion which no doubt many persons have arrived at before, viz., that probably as much heat was discharged up the chimney as into the room; it also occurred to us, that in the case of furnaces, and gas and other retorts, considerably more in proportion passed up the chimneys. As a striking instance of this, we may remark that the heat at the top of a steel-melting furnace due, which may probably be ten yards from the furnace, is so intense that the colour of the flame is nearly white. Then in the case of fires used to generate steam, although a considerable quantity

of the caloric is carried off by the water, it is well known that the heat is very great after it has passed through the boiler flues and entered into the stack or great chimney; indeed, this is proved by the necessity of lining all those chimneys with firebrick from the bottom to some considerable distance upwards; but without referring to other cases, we were, from noticing these facts, led to believe that the total quantity of heat which is constantly being discharged from the chimneys in a large town must be enormous, and that if it could be collected and concentrated it would place at disposal an immense power, which might be used to remove and probably destroy its accompanying and disagreeable partners—smoke and sulphur and noxious gases; and, at the same time, furnish the best, the most powerful, and cheapest means of effecting ventilation that has yet been discovered, and that, too, on a scale commensurate with the wants of a town—no matter whether large or small, for in proportion to the number of houses and other buildings would be the number of fires, and in the like proportion the extent of ventilation required add the power to accomplish it. Reflecting on the fact that the powerful agent which is so admirably adapted for the purpose was in such abundance that every contrivance the ingenuity of man could invent had been tried to carry it over our heads, there to mingle with and poison the air, producing disease and premature death, we were led to the conclusion that, if it were passed under our feet and properly applied, it would not only greatly assist in purifying our dwellings and work rooms, but while performing these important operations, be instrumental in destroying smoke, and probably prove as great a blessing as it is now an evil to the inhabitants of towns.

The arrangements of the plan are as follows:—

Under the footpaths along each side of every street and lane, it is proposed to construct flues of sufficient capacity to carry off all smoke and other atmospheric impurities from the buildings of a given district. The flues and their dimensions to be arranged on one general plan, so that they shall increase in capacity as they approach the outlet, in the requisite proportion to the increase of the smoke, &c., intended to pass through them; and so also that a flue may at any point be closed up for the purpose (if such stoppage be necessary, which it is thought it will not) of making fresh communications with it, or for repairs, or any emergency that may arise, and the current either turned in two opposite directions, or across the street to the flue on the other side, but, of course, always providing that there be but one way for the general current to the outlet at any time. In towns of moderate size, it is proposed that the main flues be carried out of the town, in as many and such directions as shall be most convenient, terminating in each case with lofty towers or stacks: in which it is confidently expected that, after being once ignited, a fire, produced by the combustion of the inflammable gases accompanying the smoke, &c., would burn spontaneously, in a similar manner to the combustion of foul air from some old shafts connected with coal mines. That this would be the result, there can be very little doubt, taking into consideration the nature of the gases drawn from various sources, together with the large quantity of unconsumed carbon accompanying the smoke—and that both gases and smoke being supplied at the base of the tower with oxygen to any required extent, so as to produce perfect combustion, would, in all probability, produce a constant flame of such magnitude and brilliancy as to assist materially in lighting the district by night. However, should this not be so, the combustion might be assisted by jets of coal gas, or a fire of coke, as the case might require or circumstances permit.

It is submitted that the draft caused by the great length of the flues, and height of the towers, combined with the impetus given by the furnaces in the towers, and the vast body of heated air poured into the flues from the whole of the fires in the district, would form an immense power, much more than equal to the ventilation of a town to any possible extent; and would, at the same time, insure a regular and constant draft through every flue into the street mains, which might be in-

creased or diminished by valves or dampers at pleasure, rendering a smoky chimney a thing unknown; for it may be fairly presumed, that neither the variable state of the atmosphere, nor the changeableness nor violence of the wind, would have any effect on the flues and great towers.

The next important feature of the plan is, its connection with the sewers. Communications are proposed to be made at proper intervals between the sewers and the street flues, sufficient in size to carry off the sulphuretted hydrogen, and other noxious gases, generated in or passed through the sewers, and thus effectually prevent their transmission into the houses through cellar drains, and into the streets through the gully holes.

It may be imagined that an enormously large flue would be required to carry off all the smoke from a district, but we submit that, when the velocity of the current is increased to the extent which may reasonably be expected, a flue will carry off a very much greater quantity of smoke, in a given time, than under existing circumstances.

We therefore apprehend, that a house flue, as at present constructed, is of at least ten times as great a sectional area as would be necessary with the powerful draft we propose to apply; and that a flue of the present size, would be capable of carrying off the smoke from perhaps ten, or more, house fires, and the reduction would apply in the same degree to furnace and other fires."

## THE NEW BOROUGH PRISON AT PLYMOUTH.

THIS building, which has been erected under the superintendence of Messrs. Fuller and Gingell, of Bristol, is now complete, and is about to be delivered over to the corporation. A correspondent sends us the following particulars:—It is built of the blue limestone from the quarries at Catdown, relieved by Caen stone, and the sashes are all of cast-iron, glazed with plate glass, a quarter of an inch in thickness. The governor's house and porter's lodge, are detached from the prison buildings—the former being on the right and the other on the left of the entrance gate. The main building comprises offices for the governor, and apartments for the matron, in case she should not be the governor's wife,—a chapel and surgery, reception cells, visiting cells, convalescent rooms, bath room, and cells for sixty prisoners. The female prisoners will be confined in one wing of the building; their airing yards and punishment cells (which are so constructed as to admit air, but not one particle of light), are entirely distinct from those appropriated to offenders of the other sex. The debtors will occupy a distinct portion of one wing of the building—and will be divided into two classes, each of whom will have an airy and comfortable day-room, but their sleeping cells do not differ from those of the other prisoners. The arrangements have been made with a view to carrying out the separate system of confinement, in all its completeness. Each cell is fitted with a water-closet and washing bowl, a bed and bench; and the gas and water are introduced into each. The airing-yards are twenty-four in number, radiating from a common centre, and each one of them will be occupied but by one person at one time; an officer of the prison will be so placed as to have the command of all the yards at one and the same time. A similar arrangement is carried out to the chapel. The buildings are 270 feet in length, and 150 in breadth, and they have been completed in less than fourteen months from their commencement. Messrs. Clift and Goodyear were the contractors.

BLIND DREDGERS.—A correspondent sends the following list of extraordinary tenders for deepening the bed of the River Medway, near Maidstone; Messrs. Whichcote, architects:—

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|----------------------------|--------|---|---|
| Couchman (Sheerness) ..    | £3,199 | 0 | 0 |
| Jarvis (London) ..         | 873    | 5 | 0 |
| Dyde ..                    | 750    | 0 | 0 |
| Court ..                   | 750    | 0 | 0 |
| Rook, Thomas (London) ..   | 748    | 0 | 0 |
| Cooper (Maidstone) ..      | 730    | 0 | 0 |
| Sampson, R. (Maidstone) .. | 576    | 0 | 0 |

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